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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/668,877 | 09/23/2003 | Brahim Dahmani | SP02-211 | 3614 |

22928 7590 05/17/2005
CORNING INCORPORATED
SP-TI-3-1
CORNING, NY 14831

EXAMINER

SCHILLINGER, LAURA M

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|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2813

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/668,877 | DAHMANI ET AL. | |
| | Examiner | Art Unit | |
| | Laura M. Schillinger | 2813 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 10-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/19/04</u> <u>2/18/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Nishida et al ('767).

1. A silicon thin film transistor comprising:

- a substrate (Fig.2 (204 and Col.10, lines: 10-15);
- a barrier layer of porous silica (SiO₂) deposited directly on said substrate (Fig.2D (203a see also Col.4-5, lines: 60-5); and
- a thin film of silicon that has been caused to be polycrystalline, deposited directly on said barrier layer (Fig.2D (205).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida et al ('767) as applied to claim 1 above, and further in view of Fehlner et al ('772).

In reference to claims 2-8, Nishida teaches the above limitations for claim 1, however fails to explicitly teach the porosity ratios, thickness, and grain size limitations as recited in claims 2-8.

However, Fehlner teaches the following claimed ranges:

2. The silicon thin film transistor according to claim 1, wherein the barrier layer has a porosity ratio in the range from about 20% to about 90% (Col.4, lines: 60-65).

3. The silicon thin film transistor according to claim 1, wherein the barrier layer has a porosity ratio in the range from about 30% to about 60% (Col.4, lines: 60-65).

4. The silicon thin film transistor according to claim 1, wherein the barrier layer has a thickness in the range from about 150 nm to about 1000 nm (Col.4, lines: 30-31).

5. The silicon thin film transistor according to claim 4, wherein the barrier layer has a thickness in the range from about 400 nm to about 600 nm (Col.4, lines: 30-31).

6. The silicon thin film transistor according to claim 1, wherein the thin film has a thickness in the range from about 20 nm to about 80 nm (Col.4, lines: 40-42).

7. The silicon thin film transistor according to claim 6, wherein the thin film has a thickness in the range from about 50 nm to about 80 nm(Col.4, lines: 40-42).

8. The silicon thin film transistor according to claim 1, wherein the size of the grains of polycrystalline silicon in the thin film is greater than or equal to 1 um (Col.4, lines: 30-35).

These claims are prima facie obvious without showing that the claimed ranges achieve unexpected results relative to the prior art range. In re Woodruff, 16 USPQ2d 1935, 1937 (Fed. Cir. 1990). See also In re Huang, 40 USPQ2d 1685, 1688(Fed. Cir. 1996)(claimed ranges of a result effective variable, which do not overlap the prior art ranges, are unpatentable unless they produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art). See also In re Boesch, 205 USPQ 215 (CCPA 1985) (discovery of optimum value of result effective variable in known process is ordinarily within skill of art) and In re Aller, 105 USPQ 233 (CCPA 1955) (selection of optimum ranges within prior art general conditions is obvious).

In reference to claim 9, Nishida teaches implementing a substrate, however teaches that the substrate is silicon, not glass as Applicant has claimed.

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However, Fehlner et al teaches wherein the substrate is made of glass (Col.3, lines: 65-68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nishida's teachings to further include a glass substrate, because as Fehlner teaches, either silicon or glass would be appropriate substrate materials and therefore it would be an appropriate replacement material (Col.3, lines: 65-68).

Response to Arguments

Applicant's arguments filed 2/18/05 have been fully considered but they are not persuasive. Applicant argues that Nishida fails to teach that the porous layer comprises silica, rather Nishida teaches that the porous layer comprises silicon. Silica is silicon oxide and on Col.4-5, lines: 60-5, Nishida teaches that the porous layer comprises silicon oxide. Therefore Applicant's argument is not found to be persuasive. This was also the basis of the Applicant's arguments with regard to the 103 rejection and as stated above, Nishida does teach the porous layer comprises silica. Therefore the arguments are not persuasive.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

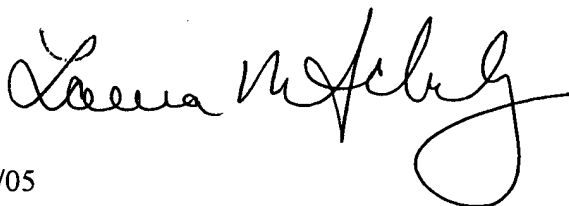
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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M. Schillinger whose telephone number is (571) 272-1697. The examiner can normally be reached on M-T, R-F 7:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl W. Whitehead, Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Laura M Schillinger
Primary Examiner
Art Unit 2813

5/10/05